

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID: M-05049
Date Received: 01/07/10
Date Extracted: 01/08/10
Date Analyzed: 01/11/10
Matrix: Water
Units: ug/L (ppb)

Client: Alaskan Copper Works
Project: PO M05049, F&BI 001036
Lab ID: 001036-01 x10
Data File: 001036-01 x10.064
Instrument: ICPMS1
Operator: AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	89	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	280
Nickel	190
Copper	206
Zinc	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Alaskan Copper Works
Date Received:	Not Applicable	Project:	PO M05049, F&BI 001036
Date Extracted:	01/08/10	Lab ID:	I0-0011 mb
Date Analyzed:	01/11/10	Data File:	I0-0011 mb.063
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	87	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	<1
Nickel	<1
Copper	<1
Zinc	<1

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ENVIRONMENTAL CHEMISTS

Date of Report: 01/14/10

Date Received: 01/07/10

Project: Metro Self Monitor, PO M05049, F&BI 001036

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 200.8**

Laboratory Code: 001018-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Chromium	ug/L (ppb)	<1	1.83	nm	0-20
Nickel	ug/L (ppb)	4.25	4.42	4	0-20
Copper	ug/L (ppb)	<1	<1	nm	0-20
Zinc	ug/L (ppb)	1.94	1.82	6	0-20

Laboratory Code: 001018-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Chromium	ug/L (ppb)	20	<1	110	50-150
Nickel	ug/L (ppb)	20	4.25	99 b	50-150
Copper	ug/L (ppb)	20	<1	102	50-150
Zinc	ug/L (ppb)	50	1.94	102	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Chromium	ug/L (ppb)	20	105	70-130
Nickel	ug/L (ppb)	20	103	70-130
Copper	ug/L (ppb)	20	100	70-130
Zinc	ug/L (ppb)	50	103	70-130

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Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 - More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - The analyte indicated was found in the method blank. The result should be considered an estimate.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - The sample was extracted outside of holding time. Results should be considered estimates.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr - The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - The value reported exceeded the calibration range established for the analyte. The reported concentration should be considered an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The pattern of peaks present is not indicative of diesel.

y - The pattern of peaks present is not indicative of motor oil.

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ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Charlene Morrow, M.S.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
FAX: (206) 283-5044
e-mail: fbi@isomedia.com

January 14, 2010

 DUPLICATE

INVOICE #10ACU0114-1

Accounts Payable
Alaskan Copper Works
628 South Hanford
Seattle, WA 98134

RE: Project Metro Self Monitor, PO M05049, F&BI 001036 - Results of testing
requested by Gerry Thompson for material submitted on January 7, 2010.

1 sample analyzed for Total Chromium, Copper, Nickel and Zinc by Method 200.8 @ \$85 per sample	\$ 85.00
Rush Charges (4 day) 60% of \$85.00	<u>51.00</u>
Amount Due	\$ 136.00

FEDERAL TAX ID # (b) (6)

Send Report To GRZLO | Hansen
Company ARADIN COPPER WORKS
Address 3200 6th Ave S.
City, State, ZIP Seattle WA
Phone # 206 571-6033 Fax # 206-382-8509

SAMPLERS (signature)

PROJECT NAME/NO.
Metro Self monitor

PO #
05049

REMARKS

Page # _____ of _____

TURNAROUND TIME

☐ **Standard (2 Weeks)**

☒ RUSH 4 day
Rush charges authorized by: _____

SAMPLE DISPOSAL

- ☐ **Dispose after 30 days**
- ☐ **Return samples**
- ☐ **Will call with instructions**

[illegible]

Friedman & Bruya, Inc.
3012 16th Avenue West

**Seattle, WA 98119-
0000
Ph. (206) 285-8282**

Fax (206) 283-5044

FORMS\COC\COC.DOC

SIGNATURE

Relinquished by:

PRINT NAME

Received by:

Relinquished by:

Received by:

COMPANY

DATE _____

TIME

Genaro Thompson

Acu

1/2/10	2:10 PM
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Nhan Phan

Fe B T

1/2/10	2.16pm
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Samples received at 18 °C

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January 14, 2010

Gerry Thompson, Project Manager
Alaskan Copper Works
628 South Hanford
Seattle, WA 98134

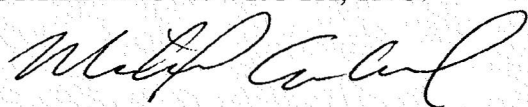
Dear Mr. Thompson:

Included are the results from the testing of material submitted on January 7, 2010 from the Metro Self Monitor, PO M05049, F&BI 001036 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
ACU0114R.DOC